FIG. 1
Prior Art

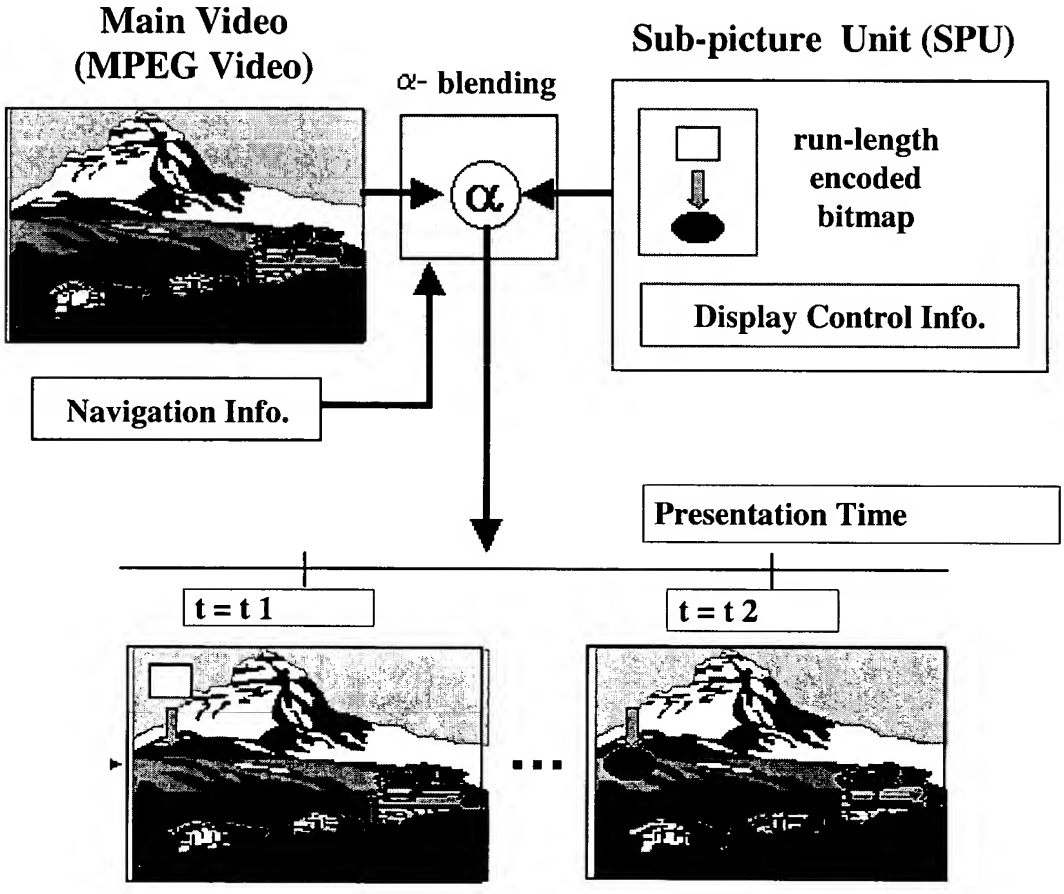


FIG. 2
Prior Art

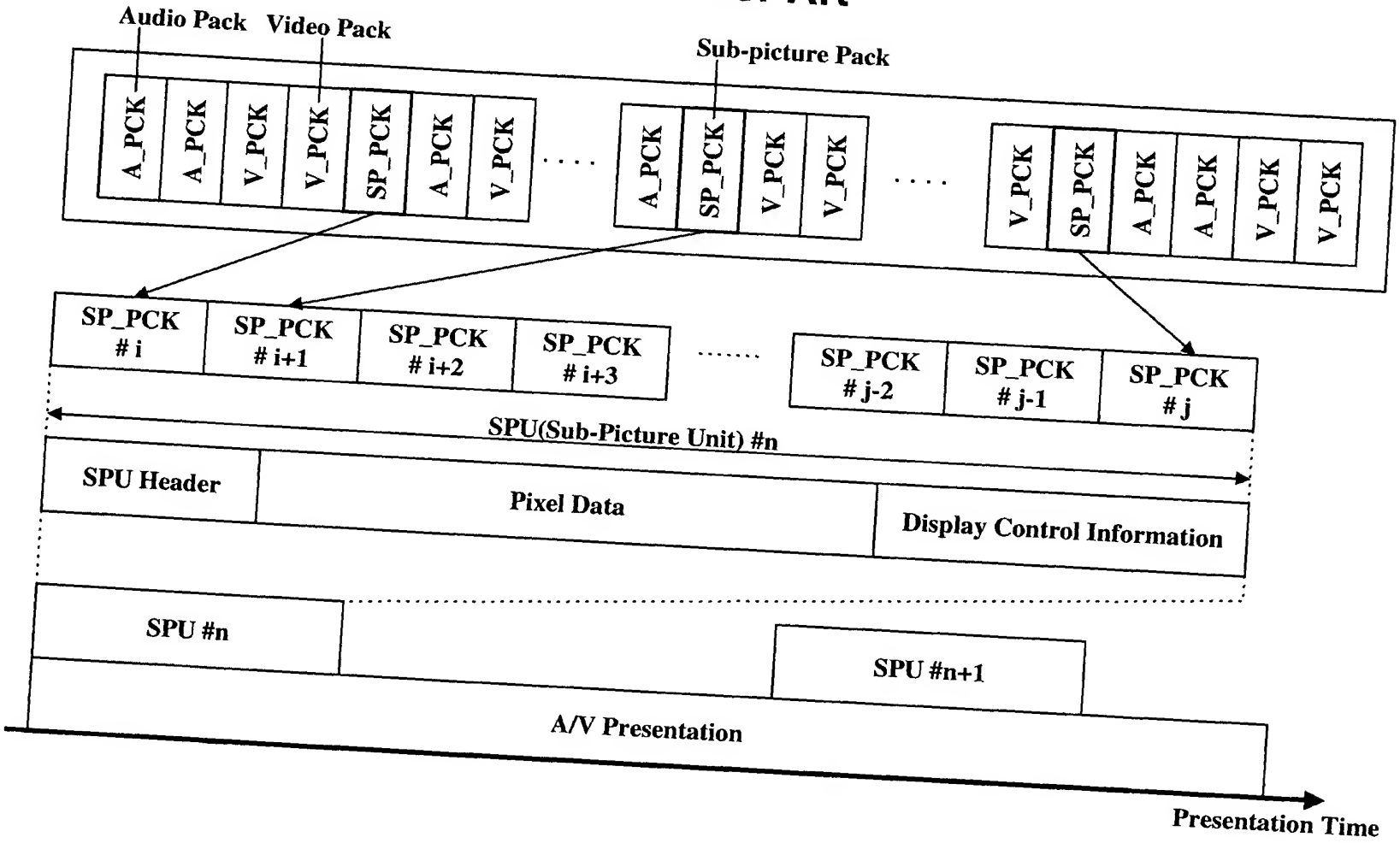


FIG. 3

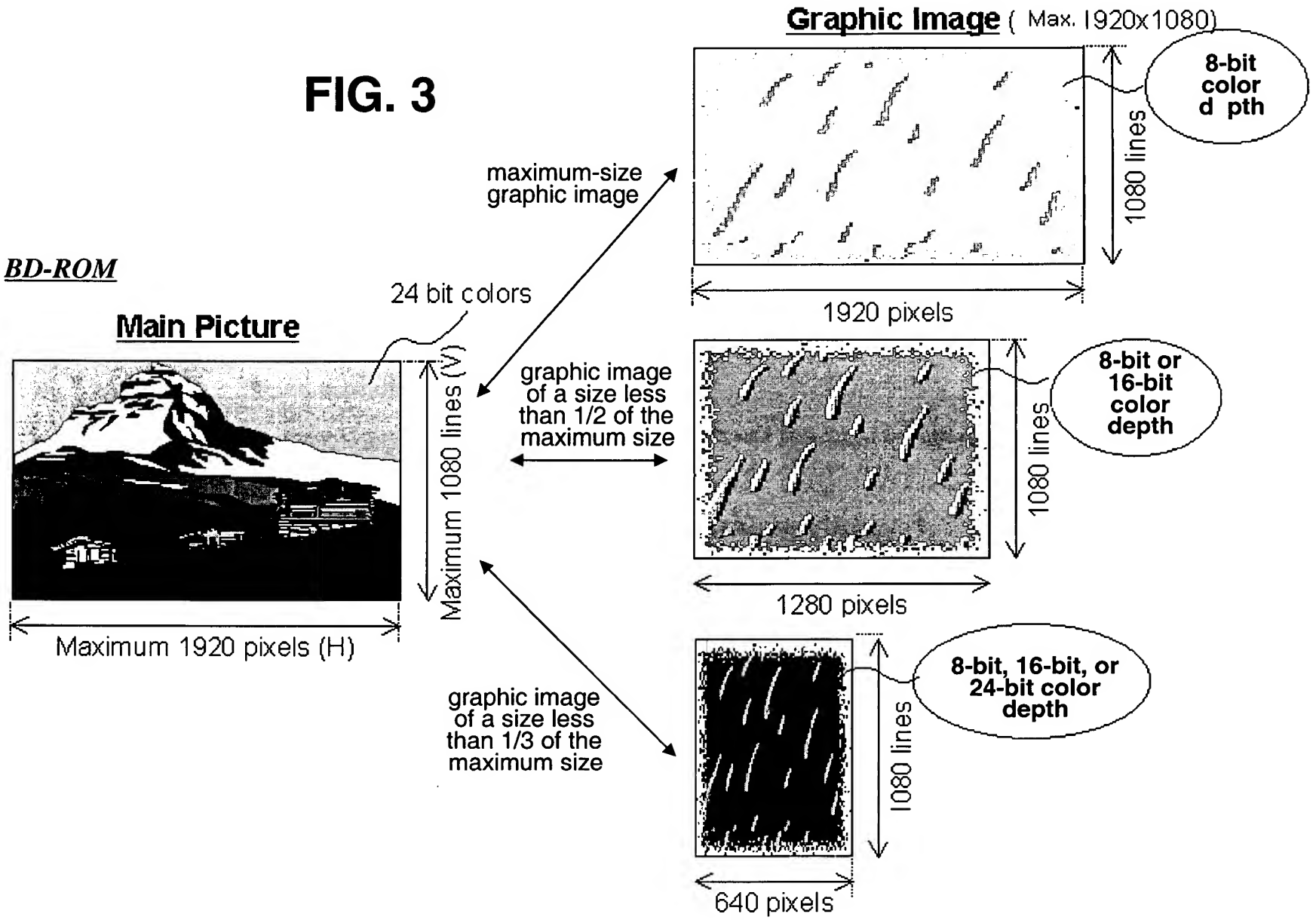

Graphic Image (Max. 1920x1080)
8-bit color d pth
1080 lines
1920 pixels
maximum-size graphic image
BD-ROM
24 bit colors
Main Picture
Maximum 1080 lines (V)
Maximum 1920 pixels (H)
graphic image of a size less than 1/2 of the maximum size
8-bit or 16-bit color depth
1080 lines
1280 pixels
graphic image of a size less than 1/3 of the maximum size
8-bit, 16-bit, or 24-bit color depth
1080 lines
640 pixels

FIG. 4

BD-ROM

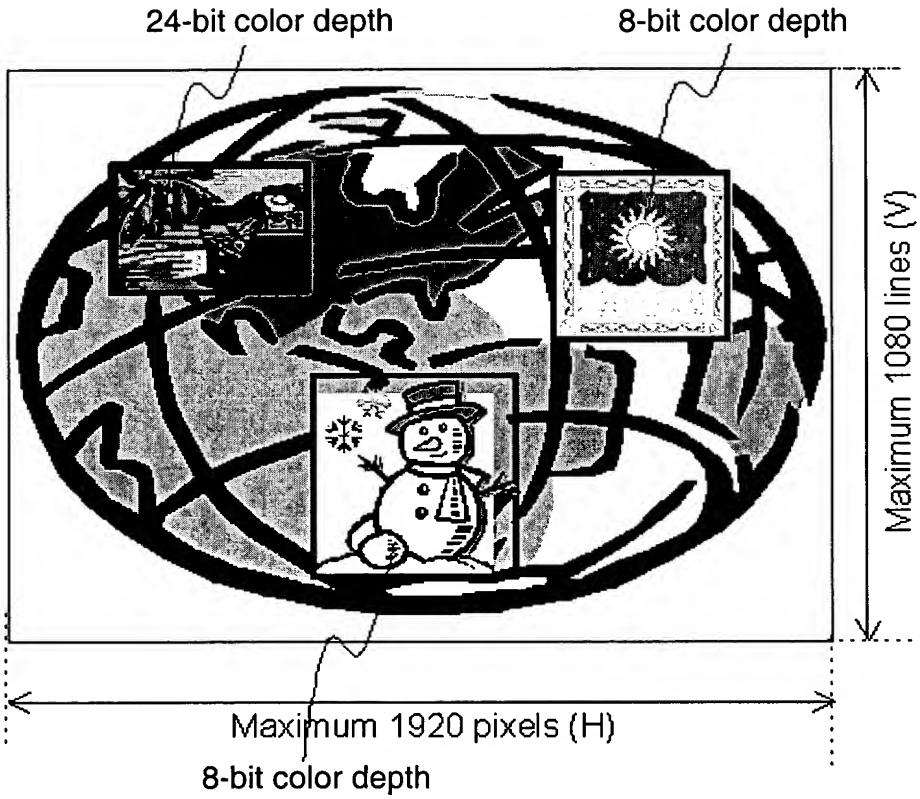

24-bit color depth
8-bit color depth
Maximum 1080 lines (V)
Maximum 1920 pixels (H)
8-bit color depth

FIG. 5

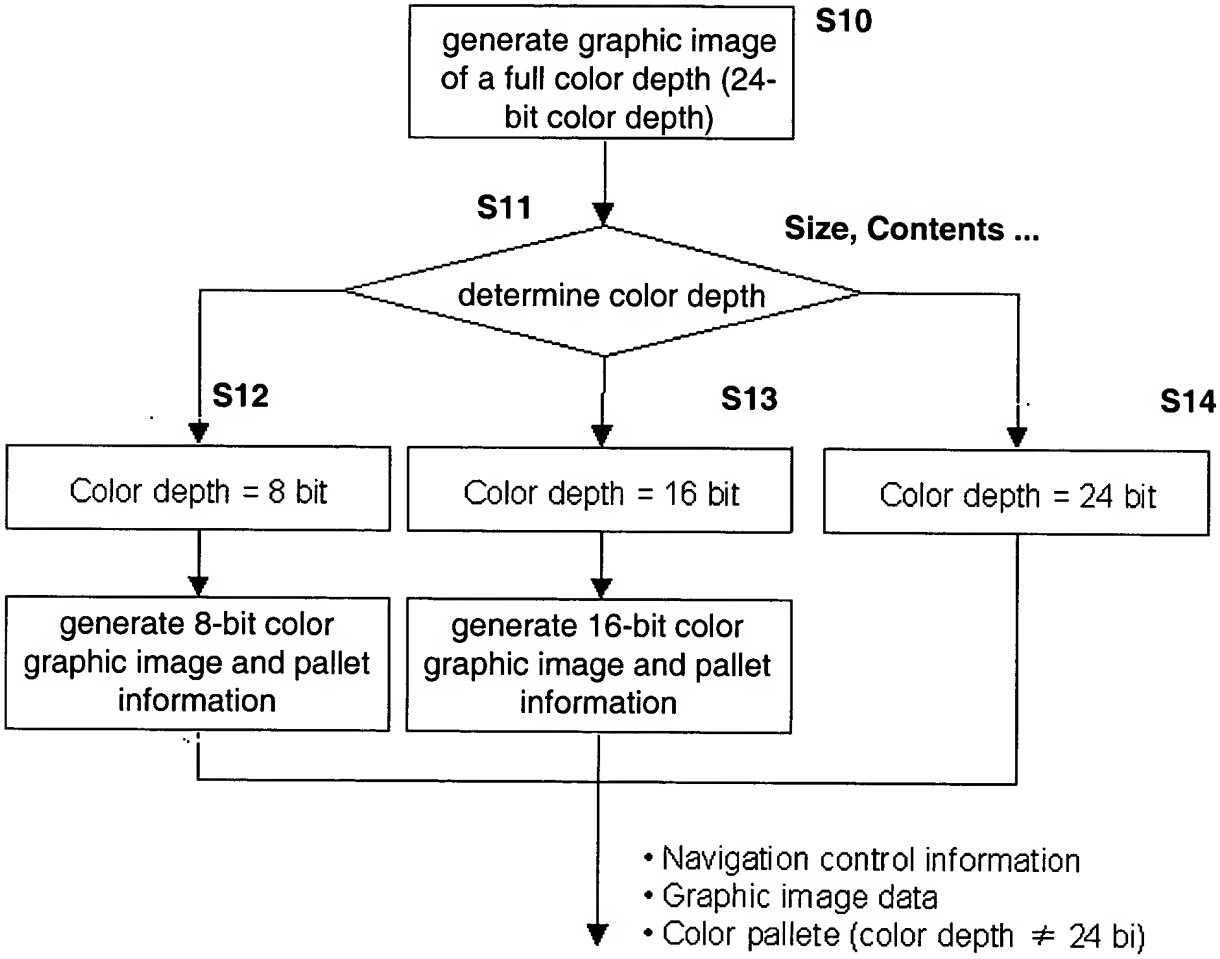

generate graphic image of a full color depth (24-bit color depth)
S10
S11
Size, Contents ...
determine color depth
S12
S13
S14
Color depth = 8 bit
Color depth = 16 bit
Color depth = 24 bit
generate 8-bit color graphic image and pallet information
generate 16-bit color graphic image and pallet information
• Navigation control information
• Graphic image data
• Color pallete (color depth ≠ 24 bi)

FIG. 6

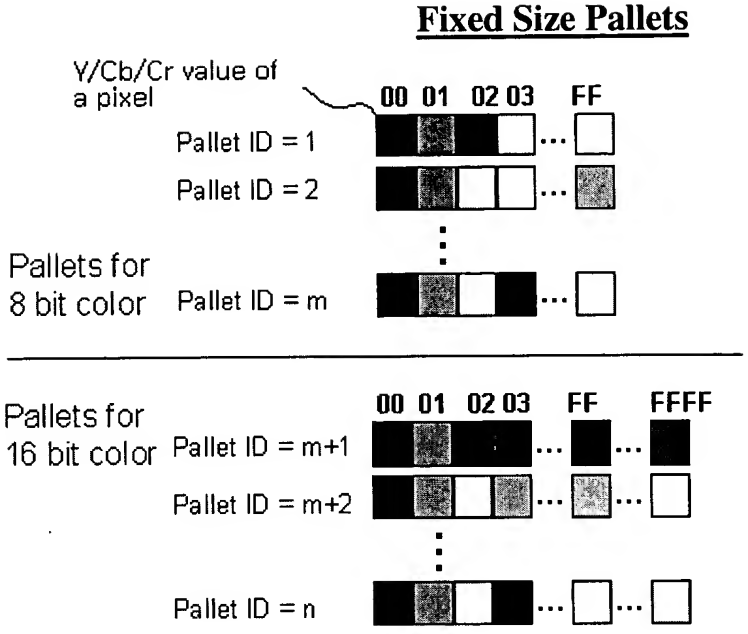

Fixed Size Pallets
Y/Cb/Cr value of a pixel
00 01 02 03
FF
Pallet ID = 1
Pallet ID = 2
Pallets for 8 bit color
Pallet ID = m
Pallets for 16 bit color
00 01 02 03
FF
FFFF
Pallet ID = m+1
Pallet ID = m+2
Pallet ID = n

FIG. 7

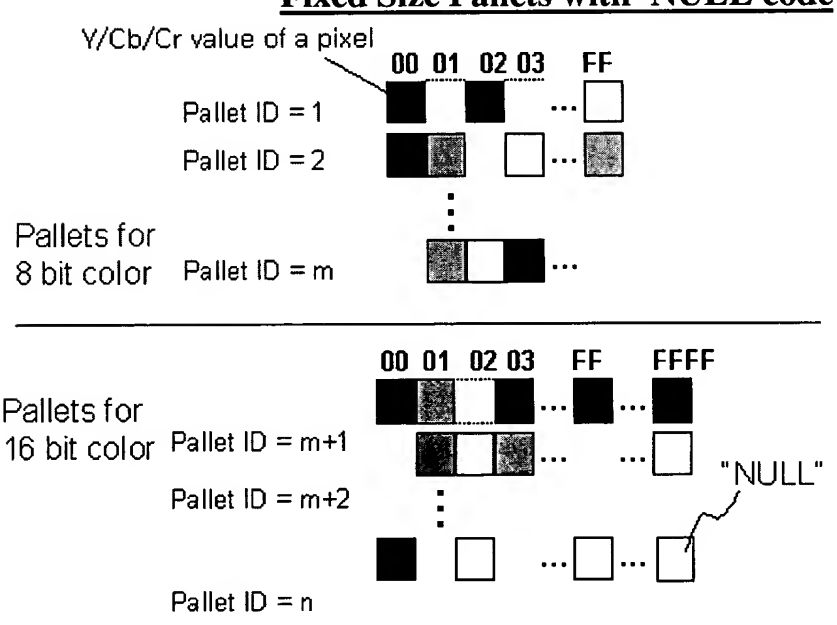
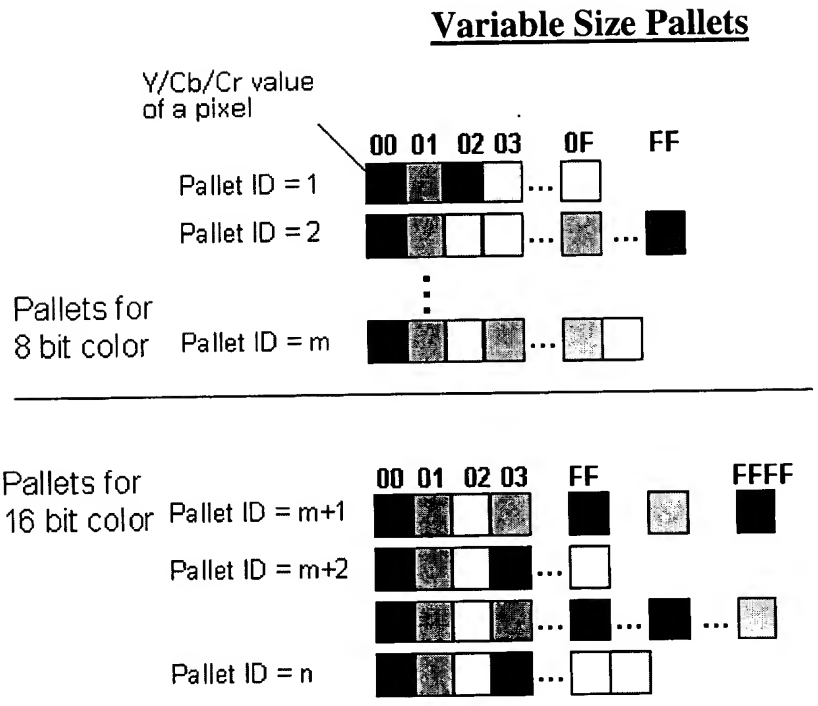

Fixed Size Pallets with 'NULL code
Y/Cb/Cr value of a pixel
00 01 02 03
FF
Pallet ID = 1
Pallet ID = 2
Pallets for 8 bit color
Pallet ID = m
Pallets for 16 bit color
00 01 02 03
FF
FFFF
Pallet ID = m+1
Pallet ID = m+2
"NULL"
Pallet ID = n

FIG. 8


Variable Size Pallets
Y/Cb/Cr value of a pixel
00 01 02 03
0F
FF
Pallet ID = 1
Pallet ID = 2
Pallets for 8 bit color
Pallet ID = m
Pallets for 16 bit color
Pallet ID = m+1
Pallet ID = m+2
Pallet ID = n
FF
FFFF

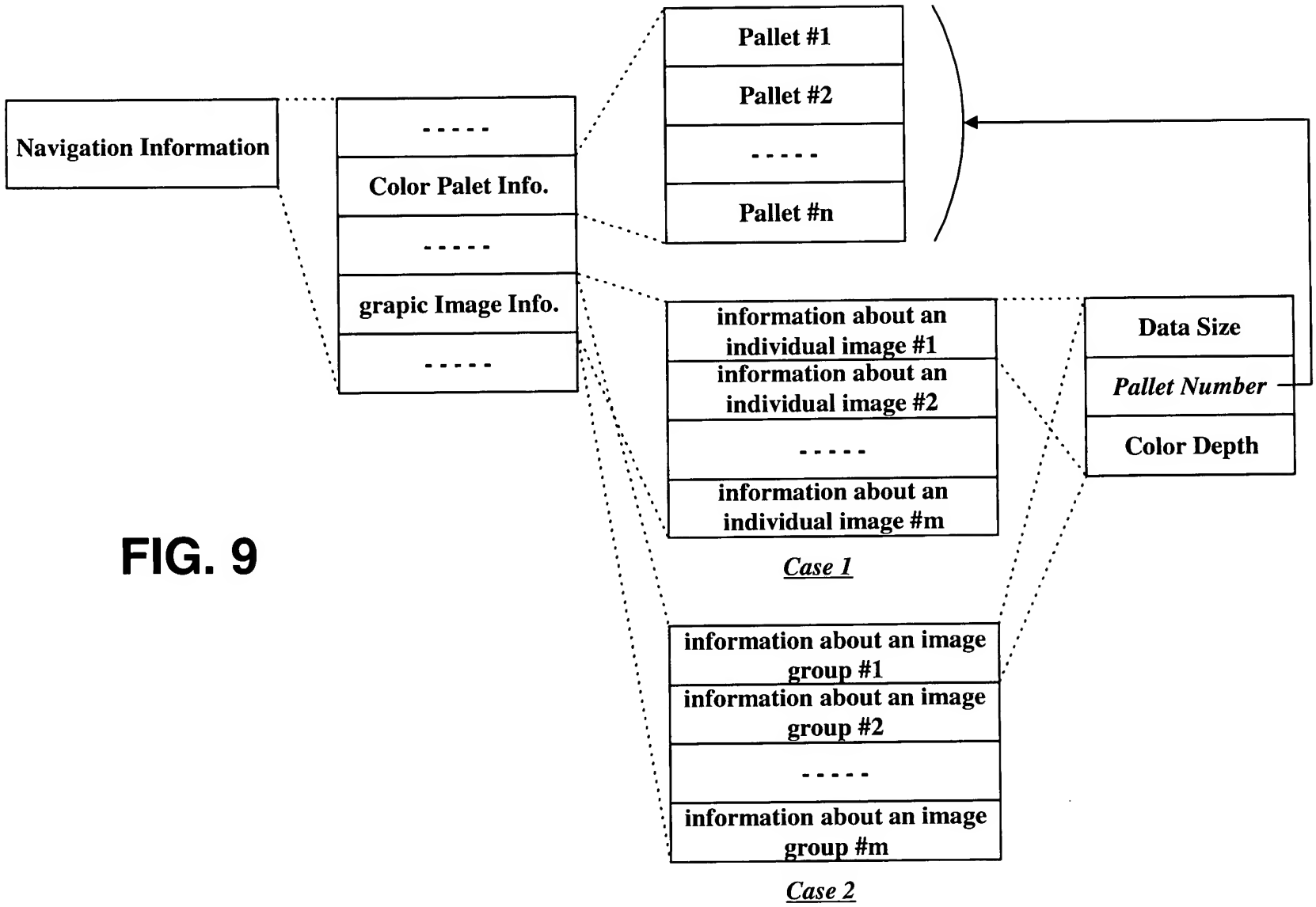

Navigation Information
- - - - -
Color Palet Info.
- - - - -
grapic Image Info.
- - - - -
Pallet #1
Pallet #2
- - - - -
Pallet #n
information about an individual image #1
information about an individual image #2
- - - - -
information about an individual image #m
Case 1
Data Size
Pallet Number
Color Depth
information about an image group #1
information about an image group #2
- - - - -
information about an image group #m
Case 2

FIG. 9

FIG. 10

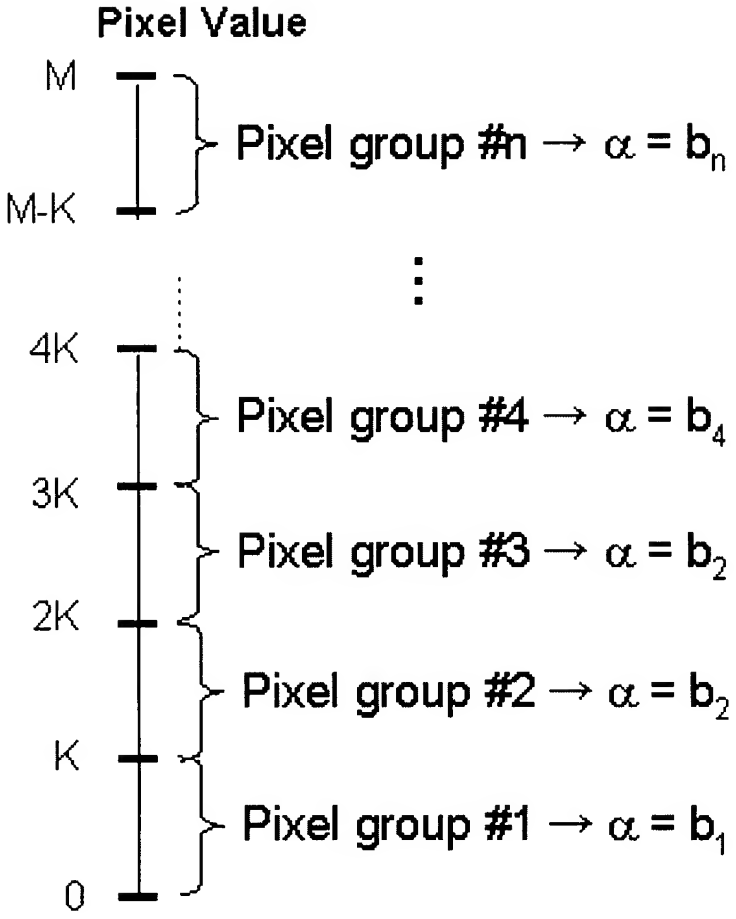


FIG. 11
Prior Art

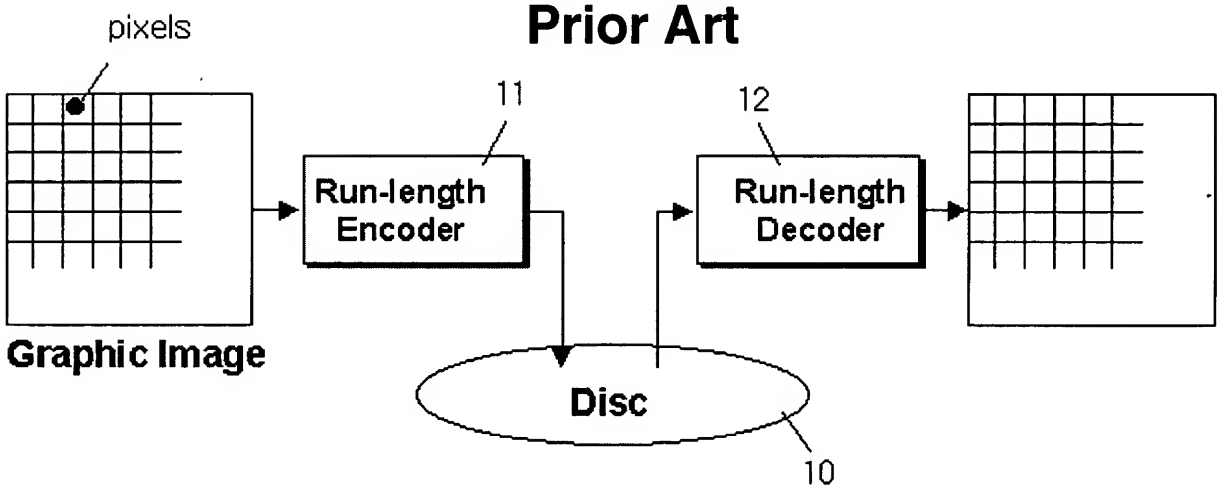


FIG. 12

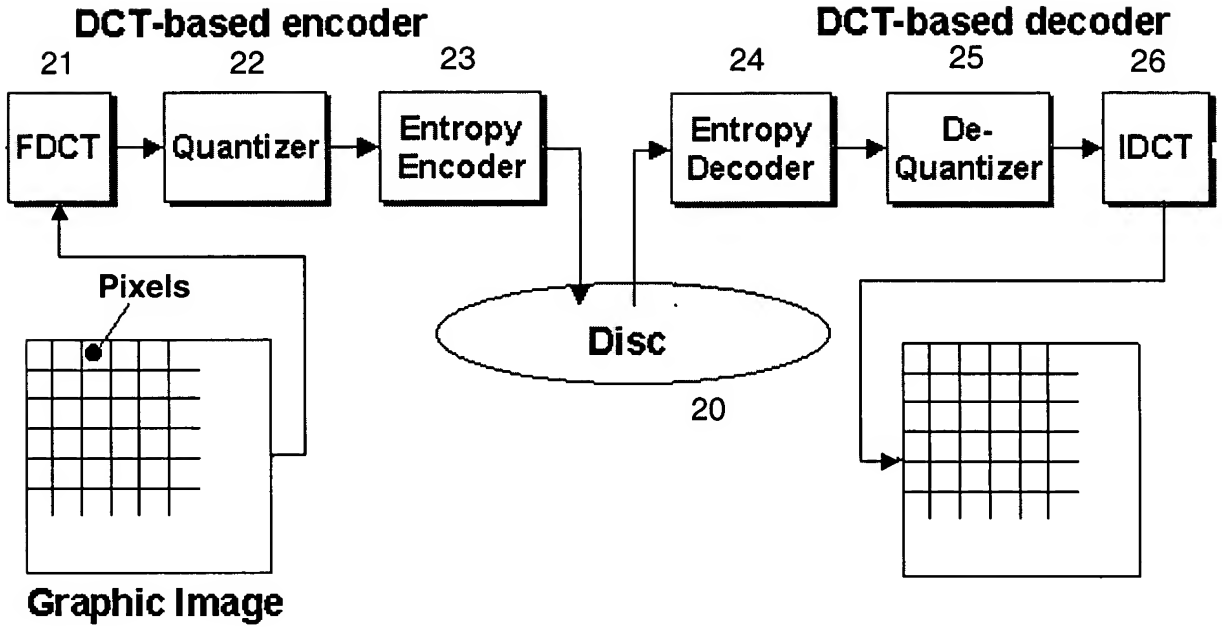

DCT-based encoder
DCT-based decoder
21
22
23
24
25
26
FDCT
Quantizer
Entropy Encoder
Entropy Decoder
De-Quantizer
IDCT
Pixels
Disc
20
Graphic Image

FIG. 13

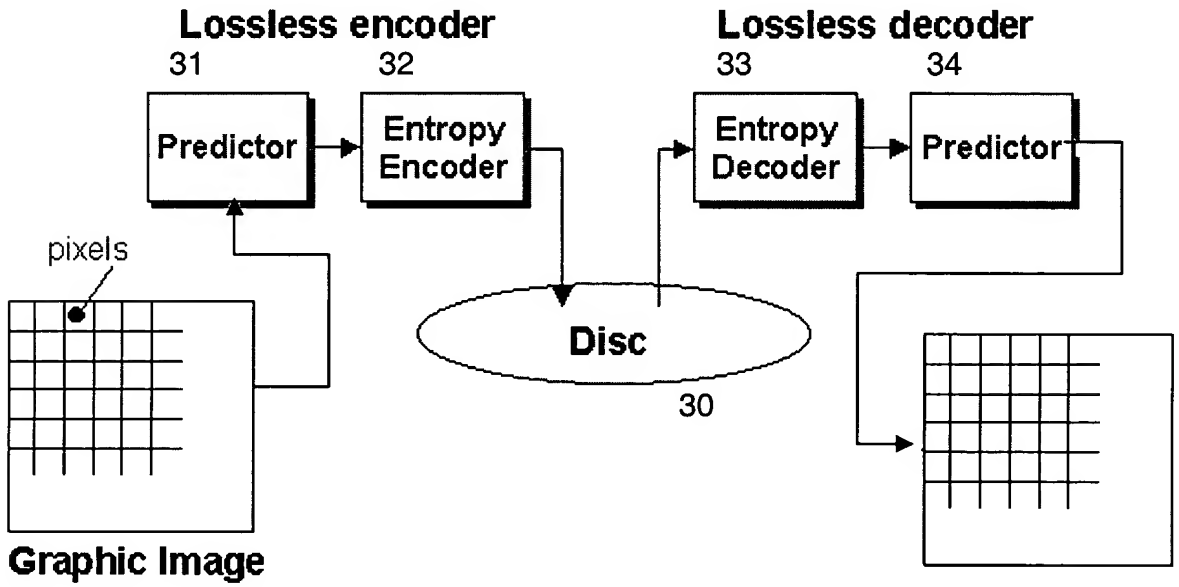

Lossless encoder
Lossless decoder
31
32
33
34
Predictor
Entropy Encoder
Entropy Decoder
Predictor
pixels
Disc
30
Graphic Image

FIG. 14

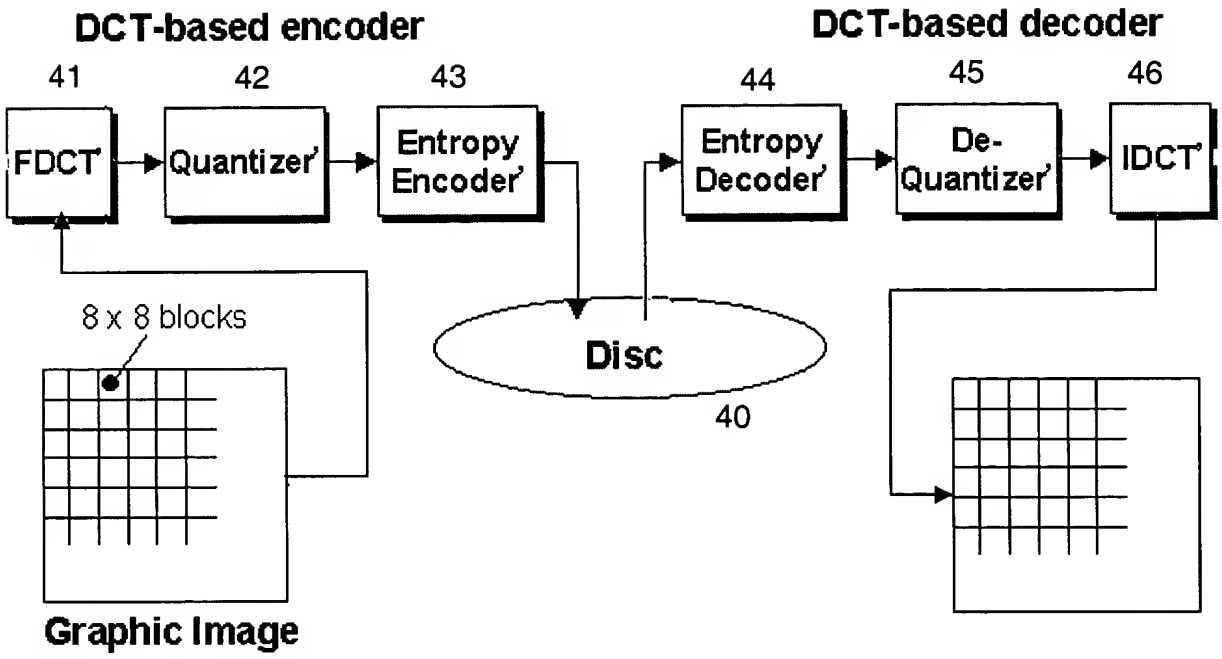

DCT-based encoder
DCT-based decoder
41
42
43
44
45
46
FDCT
Quantizer
Entropy Encoder
Entropy Decoder
De-Quantizer
IDCT
8 x 8 blocks
Disc
40
Graphic Image

FIG. 15

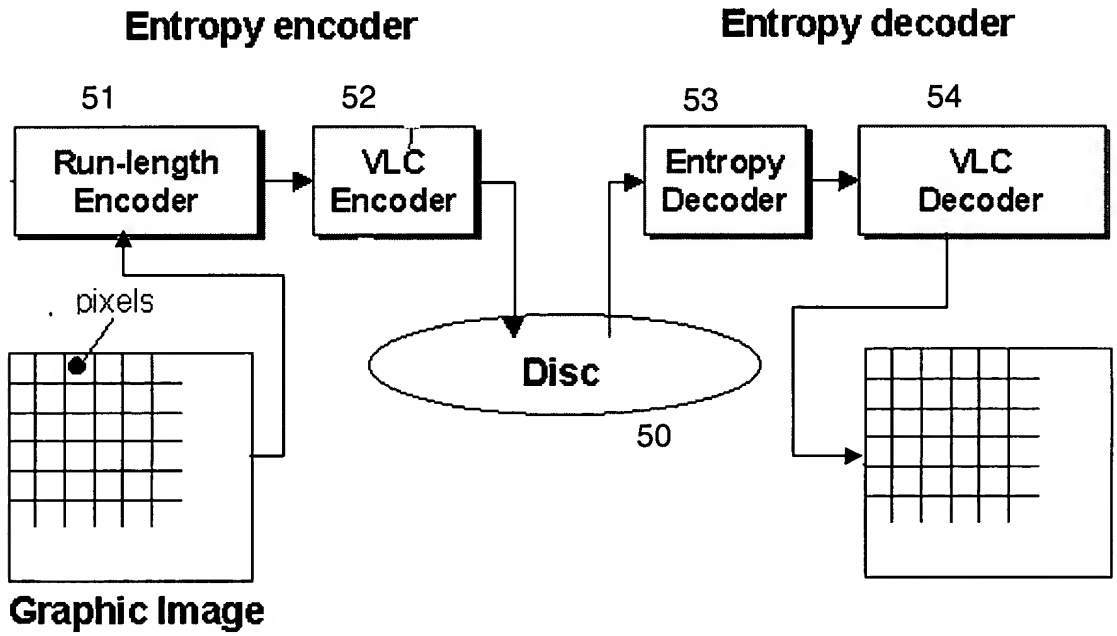

Entropy encoder
Entropy decoder
51
52
53
54
Run-length Encoder
VLC Encoder
Entropy Decoder
VLC Decoder
pixels
Disc
50
Graphic Image

FIG. 16

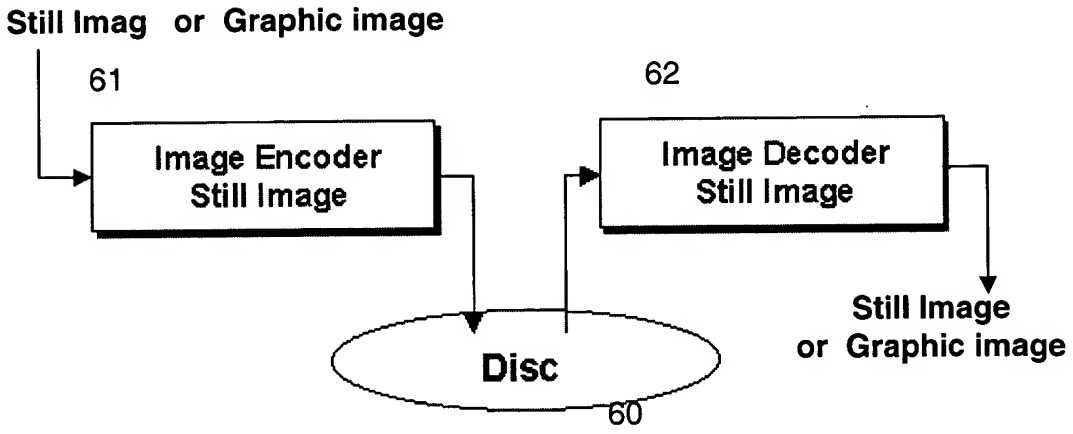

Still Imag or Graphic image
61
Image Encoder
Still Image
62
Image Decoder
Still Image
Still Image
or Graphic image
Disc
60

FIG. 17

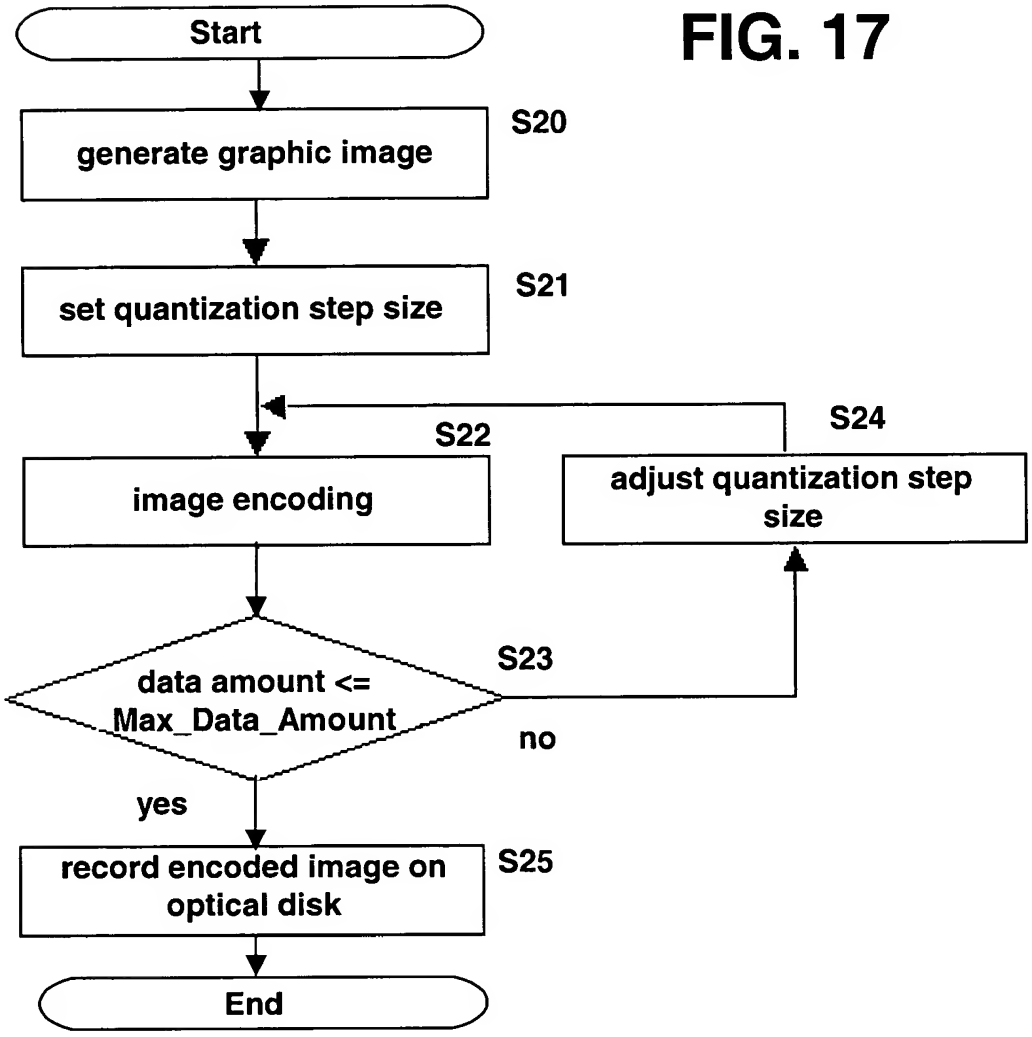
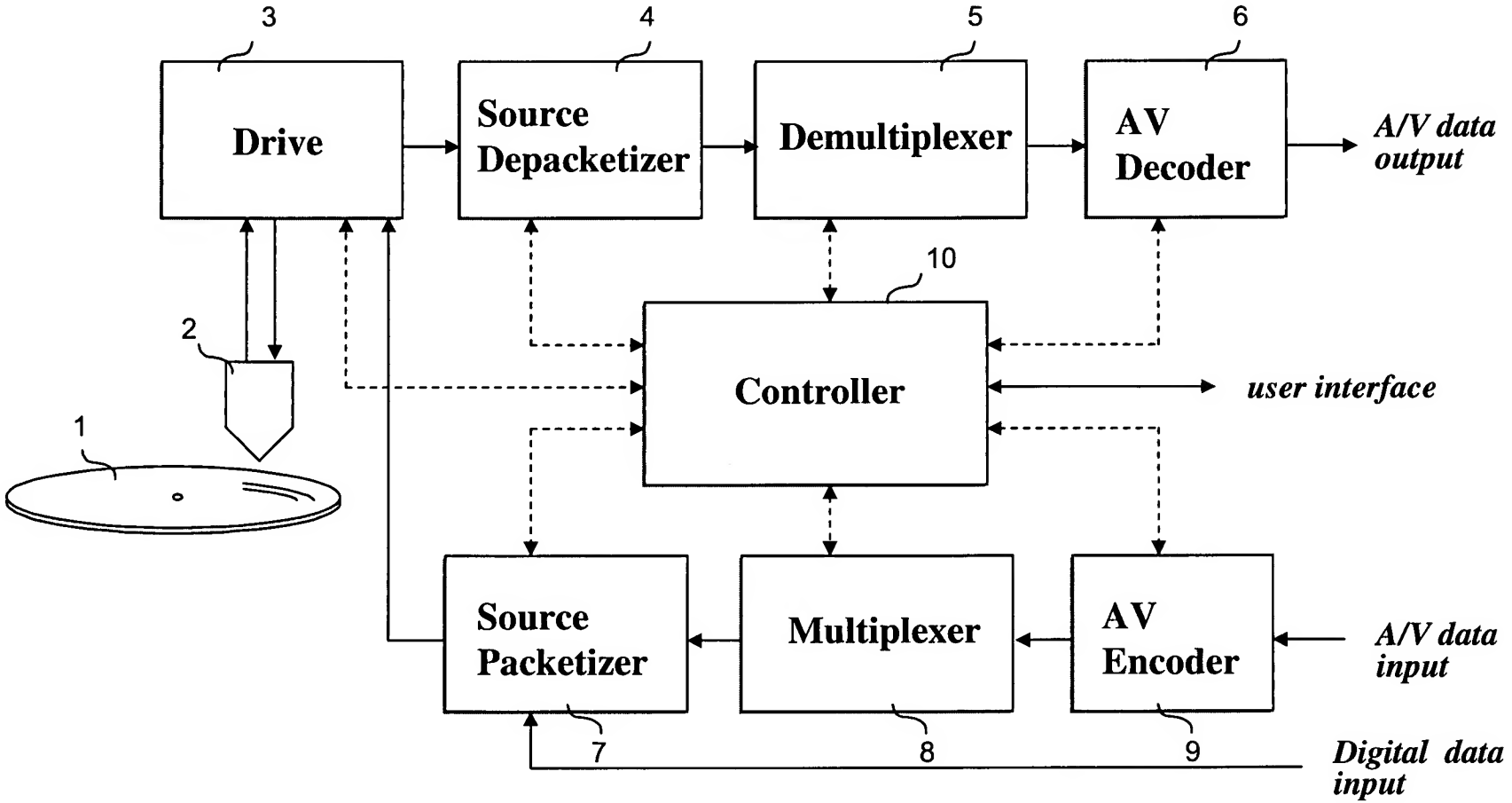

Start
generate graphic image
S20
set quantization step size
S21
S22
S24
image encoding
adjust quantization step size
data amount <= Max_Data_Amount
S23
no
yes
record encoded image on optical disk
S25
End

FIG. 18


3
4
5
6
Drive
Source Depacketizer
Demultiplexer
AV Decoder
A/V data output
10
2
Controller
user interface
1
Source Packetizer
Multiplexer
AV Encoder
A/V data input
7
8
9
Digital data input